PTO/SB/17 (01-03)
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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 320.00

Complete if Known	
Application Number	09/583,747
Filing Date	May 31, 2000
First Named Inventor	Sexton
Examiner Name	Gubiotti, M.
Art Unit	2124
Attorney Docket No.	50277-0450

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☒ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account

Deposit Account Number

Deposit Account Name

The Commissioner is authorized to: *(check all that apply)*

☒ Charge fee(s) indicated below ☐ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	750	2001	375	Utility filing fee	
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below		Fee Paid
Total Claims	-20**=		X		=	
Independent Claims	- 3**=		X		=	
Multiple Dependent					=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	**Reissue independent claims over original patent
1205	18	2205	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

** or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge – late filing fee or oath	
1052	50	2052	25	Surcharge – late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	320.00
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive – unavoidable	
1453	1,300	2453	650	Petition to revive – unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	--
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 320.00

SUBMITTED BY

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Harlan SEXTON		
Application No.:	09/583,747	Group Art Unit:	2124
Filed:	May 31, 2000	Examiner:	Gubiotti, M.
Attorney Docket:	50277-0450		
Client Docket:	OID-1997-048-11		

#16 10-10-03

For: DIAGNOSTIC METHOD AND ARTICLE FOR IDENTIFYING SIGNIFICANT EVENTS

APPEAL BRIEF

Honorable Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This Appeal Brief is submitted, in triplicate, in support of the Notice of Appeal filed July 21, 2003.

I. REAL PARTY IN INTEREST

Oracle International Corp. is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III. STATUS OF THE CLAIMS

Claims 1-22 are pending in this appeal. No claim is allowed. This appeal is therefore taken from the final rejection of claims 1-22 on May 20, 2003.

IV. STATUS OF AMENDMENTS

The amendment to claims 6 and 22 filed June 24, 2003 has been entered.

V. SUMMARY OF THE INVENTION

The present invention addresses problems associated with implementing a scalable, dynamic run-time environment. One approach to improving scalability in terms of the number of different sessions is to reduce the footprint the memory for each session (e.g. session memory 222 in FIG. 2). In order to use the various techniques for reducing the session memory footprint, it is useful to affirmatively identify which objects are migrated into session memory. In a large run-time environment, such as a JAVA virtual machine, however, many objects are allocated and deallocated during the course of a call and it is difficult to identify, by manual inspection, those objects that would benefit most from applying such above-described techniques. Accordingly, there is a need for a diagnostic tool that can be used to identify the allocation of objects that are migrated as well as other significant events of interest.

This and other needs are addressed by the present invention, in which backtraces (stack traces) are logged in the log file and also tagged during execution of a program with information that can categorize the backtraces (FIG. 3, steps 300, 302). In addition, certain tags can also be marked as "interesting" in the log file during execution of the program (step 304). A report is generated from the log file, showing one or more of the backtraces associated with the interesting tags (step 306). Consequently, significant events can be automatically identified from a set of

loggable events when the significance of the events can only be determined after the logging of the event occurs.

To be more specific, in one embodiment, backtraces are logged whenever a memory management routine to allocate memory for an object is called. These backtraces are also tagged with the starting address of allocated memory. This tag is not necessarily unique, because, as objects are allocated and deallocated, several objects over time may reuse the same allocated memory. When the objects are migrated at the end of a call, their starting address is marked in the backtrace log file as "interesting." Consequently, the generated report will show the backtraces associated with the allocation of objects that were later migrated. Thus, backtraces of migrated objects are produced when the objects were allocated, even though it can only be determined later that a particular allocated object was migrated to session memory.

VI. ISSUES

Whether claims 1-18 are anticipated under 35 U.S.C § 102 by *Arsenault* (US 5,408,650)?

Whether claims 19-22 are obvious under 35 U.S.C. § 103 based on *Arsenault*?

Whether claims 6 and 22 are indefinite under 35 U.S.C. § 112, ¶ 2?

VII. GROUPING OF CLAIMS

The claims should not be regarded as all standing together since the claims recite respective limitations that render each of the claims separately patentable. For the purposes of this appeal, the following groups are recognized:

A. Claims 1-4, 10-13

B. Claims 5 and14

C. Claim 6

D. Claims 7-8 and 15-17

E. Claims 9 and 18

F. Claims 19 and 21

G. Claim 20

H. Claim 22

VIII. ARGUMENT

A. CLAIMS 5, 9, 14, AND 18 ARE NOT ANTICIPATED BECAUSE *ARSENAULT* FAILS TO DISCLOSE "MIGRATED OBJECTS."

To anticipate a patent claim, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383, 58 USPQ2d 1286, 1291 (Fed. Cir. 2001); *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

The rejection of claims 5, 9, 14, and 18 over *Arsenault* is improper because the applied reference does not disclose the limitations of the claims. For example, claims 5, 9, 14, and 18 recite "the one or more marked tags indicate one or more respective addresses of **migrated objects**" (emphasis added). This element is not disclosed in *Arsenault.*

Arsenault is directed to a visual, interactive debugging system that analyzes memory events, such as the allocation and deallocation of memory locations that are associated with the execution of an application program (Abstract). Specifically, *Arsenault* provides a display for letting the user visually associate dynamically allocated memory locations with program sub-routines in call stacks (cols. 2:64–3:3). Furthermore, each of the memory locations is assigned a segment type that relates to a program subroutine that calls for it (Abstract). *Arsenault*, however,

does not disclose any "migrated objects," not to mention the "respective addresses of migrated objects" as required by claims 5, 9, 14, and 18. Furthermore, *Arsenault* has no details about objects within the memory segments, nor even whether the objects or memory segments are migrated.

The portions cited by the Examiner do not support the rejection. *Arsenault*, col. 6:30-40, merely states that the call stack listing includes information that allows a user to trace the memory allocation commands associated with a selected memory segment through various program routines, determine if the routines are appropriately allocating and releasing memory locations, and also determine if the routing is calling for properly sized memory blocks (col. 6:33-37). The cited section, however, contains no disclosure of "migrated objects" as recited in claims 5, 9, 14, and 18.

Moreover, claims 5, 9, 14, and 18 recite that the "the one or more **marked tags indicate** one or more respective **addresses** of migrated objects" (emphasis added). Unless the patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent. *Georgia Pacific Corp. v. U.S. Gypsum Co.*, Nos. 97-1238,-1244 (Fed. Cir., Nov. 1, 1999); see also *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579, 34 USPQ2d 1673, 1679 (Fed. Cir. 1995); *Fonar Corp. v. Johnson & Johnson*, 821 F.2d 627, 632, 3 USPQ2d 1109, 1113 (Fed. Cir. 1987). However, in the rejection of parent claim 1, the Examiner reads the "marked tag" on a creation count, an ordinal number (col. 6:42) which does not indicate an address at all, let alone an address of a migrated object. Column 4:24-27 of *Arsenault*, cited in the Office Action, merely states that a "user can request that the memory analysis system display additional information about selected memory locations, such as the addresses if individual memory locations" but has nothing to with the creation count, marked tags, or migrated objects.

Finally, the Advisory Action dated July 3, 2003, contends that "Arsenault teaches logging stack traces for the respective migration addresses of migrated objects ('memory events', col. 2, ll. 2 to col. 3, ll. 22)." The Examiner's rebuttal misses its mark. "Memory events" is too vague a phrase to amount to a disclosure of migrated objects. Also, the additional limitations in claims 5, 9, 14, and 18 involve "marked tags" not "stack traces," which are recited in the parent claims, so the newly cited passage of one and half columns is not relevant to the recitations of claims 5, 9, 14, and 18.

Since *Arsenault* fails to disclose the limitation of "the one or more marked tags indicate one or more respective addresses of migrated objects," the rejection of claims 5, 9, 14, and 18 is improper and should be reversed.

B. *ARSENAULT* FAILS TO ANTICIPATE CLAIMS 1-22 BECAUSE *ARSENAULT* DISCLOSES NEITHER "LOGGING A PLURALITY OF STACK TRACES ... IN A LOG FILE" NOR "ACCESSING A LOG FILE COMPRISING A LIST OF STACK TRACES."

Turning now to the rejection of all claims 1-22, Appellant respectfully requests reversal of this rejection because *Arsenault* does not disclose the limitations recited in independent claims 1, 6, 10, and 15. For example, independent claims 1 and 10 recite "logging a plurality of stack traces and respective tags in a log file," and independent claims 6 and 15 recite "accessing a log file comprising a list of stack traces and respective tags."

Arsenault does not disclose any "log file" at all and at best discloses a representation displayed to the user on the screen of a display device that includes "a listing **26** of the call-stack associated with a selected memory segment" (col. 6:2-4, note singular "call-stack"). Specifically, *Arsenault* discloses a graphic representation of a map of allocated memory segments depicted by segment type and various listings shown on a display device to a user (cols. 5:65–6:4), but not the "recording within the log file one or more of the tags as one or more marked tags" as presently

recited in independent claims 1 and 10 and "accessing a log file comprising a list of stack traces and respective tags."

Although the Examiner (final Office Action p. 8) alleged that "the listing of call stacks associated with selected memory segments is indistinguishable from the log file as claimed," this is not sufficient to sustain the rejection, because a display of a singular call stack (FIG. 2, item 26, and col. 6:2-4: "a listing **26** of the **call-stack** associated with a selected memory segment") is not a "log file comprising a list of stack traces" (plural). The passage cited in the Advisory Action of July 3, 2003, merely states "corresponding call-stacks," with no disclosure that multiple call stacks are displayed at once. In fact, *Arsenault* implies that only one call stack is displayed at a time and previously displays are erased, since otherwise the Slow button **44** would not be provided to slow down the display (see col. 9:63-68).

Furthermore, the Examiner's construction of a "log file" as *Arsenault*'s display screen is incompatible with the rest of the language of the claims. For example, independent claims 1 and 10 state "recording **within** the log file." However, information is not recorded "within" a display screen, but "on" the screen. For example, *Arsenault*, col. 5:67-68, states: "The representation is displayed to a user on the screen of the display device 22 (FIG. 1)." As for independent claims 6 and 15, the elements of "accessing a log file" and "producing the diagnostic report based on the log file" do not make sense to one of ordinary skill in the when the log file is a screen, particularly since display screens do not hold enough history ("log") when accessed to produce a diagnostic report.

The Examiner's recourse for his contorted understanding of "log file" ignores the well-settled law that the words of a claim must be read as they would be interpreted by those of ordinary skill in the art. *In re Baker Hughes Inc.*, 215 F.3d 1297, 55 USPQ2d 1149 (Fed. Cir.

2000); *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); M.P.E.P. 2111.01. In particular, the PTO's broadest reasonable interpretation "must be consistent with the one that those skilled in the art would reach." *In re Cortright,* 165 F.3d 1353, 1369, 49 USPQ2d 1464, 1465 (Fed. Cir. 1999). A person of ordinary skill in the art would not accept the Examiner's construction of "log file" for the foregoing reasons and the Examiner has not cited any reference in support of his unusual position.

C. *ARSENAULT* DOES NOT SUGGEST PROCESSING THE LOG FILE BACKWARDS AS RECITED IN CLAIMS 19-22.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention under any statutory provision always rests upon the Examiner. *In re Mayne*, 41 USPQ2d 1451 (Fed .Cir. 1997); *In re Deuel*, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Bell*, 26 USPQ2d 1529 (Fed. Cir. 1993); *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to provide a factual basis to support the obviousness conclusion. *In re Warner*, 154 USPQ 173 (CCPA 1967); *In re Lunsford*, 148 USPQ 721 (CCPA 1966); *In re Freed*, 165 USPQ 570 (CCPA 1970). The Examiner is required to show that all the claim limitations are taught or suggested by the references. *In re Royka*, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 165 USPQ 494 (CCPA 1970).

The obviousness rejection of claims 19-22, however, lacks a factual basis. No cited reference, including *Arsenault*, teaches or otherwise suggests "processing the log file from the end backward until the beginning" as recited in claims 19-22. In fact, the Examiner, on page 7 of the final Office Action, correctly acknowledges that *Arsenault* does not expressly teach processing the log file from the end to the beginning to produce a report, but fails to cite a single other reference in support of this claim limitation.

Moreover, the alleged motivation for the modification proffered by the Examiner is suspect. Obviousness rejections require some evidence in the prior art of a teaching, motivation, or suggestion to combine and modify the prior art references. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001); *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). The Patent Office must give specific reasons why one of ordinary skill in the art would have been motivated to combine the references. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

Despite the deficiency of the Examiner's cited references in showing the recited "processing the log file from the end backward until the beginning," the Examiner contends that "one of ordinary skill in the art would have been motivated to process the newest entry to a sequentially-generated log file first to optimize memory usage and run-time efficiency, as taught by *Arsenault* (col. 6, li.37-40)." (final Office Action, p. 7, item 9) This reasoning is contrary to *Arsenault*'s disclosure.

At best, *Arsenault* merely has a displayed call-stack, not the recited "log file," let alone the sequentially-generated log file that is fundamental of the Examiner's reasoning. In fact, had *Arsenault* disclosed a sequentially-generated log file, the contortions to read the recited "log file" on a display screen would have been wholly unnecessary. Furthermore, the passage cited by the Examiner merely mentions that "information allows a user to optimize the **program** in terms of memory usage and run-time efficiency, as they relate to memory allocation" (col. 6:37-40). In other words, the Examiner's passage relates to using the *Arsenault* system to optimize the user's

application program. Neither the passage nor the motivation seemingly derived from it relates to processing call-stack listings.

D. THE INDEFINITENESS REJECTION OF CLAIMS 6 AND 22 IS MOOT IN LIGHT OF THE ENTRY OF THE AMENDMENT DATED JUNE 24, 2003.

The Advisory Action of July 3, 2003, indicated that the amendment of July 24, 2003, was entered. Accordingly, the rejection of claims 6 and 22 under 35 U.S.C. § 112, ¶ 2, is moot.

IX. CONCLUSION AND PRAYER FOR RELIEF

Appellant, therefore, requesst the Honorable Board to reverse each of the Examiner's rejections.

Respectfully Submitted,

DITTHAVONG & CARLSON, P.C.

9/22/2003
Date

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APPENDIX

1. A method for analyzing a program, comprising the steps of:

logging a plurality of stack traces and respective tags in a log file at respective points during execution of the program; and

recording within the log file one or more of the tags as one or more marked tags.

2. The method according to claim 1, further comprising the step of:

producing a report based on the log file.

3. The method according to claim 2, wherein the step of producing the report includes:

identifying one or more of the stack traces that are associated with any of the one or more tags marked; and

producing the report based on the identified one or more of the stack traces.

4. The method according to claim 2, wherein producing the report includes:

identifying a last stack trace that is associated with one of the one or more marked tags; and

producing the report based on the identified last stack trace.

5. The method according to claim 1, wherein:

the tags indicate respective addresses of allocated objects; and

the one or more marked tags indicate one or more respective addresses of migrated objects.

6. A method for producing a diagnostic report for a program, comprising the steps of:

accessing a log file comprising a list of stack traces and respective tags at associated points during execution of the program and comprising one or more marked tags; and

producing the diagnostic report based on the log file.

7. The method according to claim 6, wherein the step of producing the report includes:

identifying one or more of the stack traces that are associated with any of the one or more marked tags; and

producing the report based on the identified one or more of the stack traces.

8. The method according to claim 6, wherein producing the report includes:

identifying a last stack trace that is associated with one of the one or more marked tags; and

producing the report based on the identified last stack trace.

9. The method according to claim 6, wherein:

the tags indicate respective addresses of allocated objects; and

the one or more marked tags indicate one or more respective addresses of migrated objects.

10. A computer-readable medium bearing instructions for analyzing a program, said instructions being arranged to cause one or more processors upon execution thereby to perform the steps of:

logging a plurality of stack traces and respective tags in a log file at respective points during execution of the program; and

recording within the log file one or more of the tags as one or more marked tags.

11. The computer-readable medium according to claim 10, further bearing instructions for performing the step of:

producing a report based on the log file.

12. The computer-readable medium according to claim 11, wherein the step of producing the report includes:

identifying one or more of the stack traces that are associated with any of the one or more marked tags; and

producing the report based on the identified one or more of the stack traces.

13. The computer-readable medium according to claim 11, wherein producing the report includes:

identifying a last stack trace that is associated with one of the one or more marked tags; and

producing the report based on the identified last stack trace.

14. The computer-readable medium according to claim 10, wherein:

the tags indicate respective addresses of allocated objects; and

the one or more marked tags indicate one or more respective addresses of migrated objects.

15. A computer-readable medium bearing instructions for producing a diagnostic report for a program, said instructions being arranged to cause one or more processors upon execution thereby to perform the steps of:

accessing a log file comprising a list of stack traces and respective tags at associated points during execution of the program and comprising one or more marked tags; and

producing the diagnostic report based on the log file.

16. The computer-readable medium according to claim 15, wherein the step of producing the report includes:

identifying one or more of the stack traces that are associated with any of the one or more marked tags; and

producing the report based on the identified one or more of the stack traces.

17. The computer-readable medium according to claim 15, wherein producing the report includes:

identifying a last stack trace that is associated with one of the one or more marked_ tags; and

producing the report based on the identified last stack trace.

18. The computer-readable medium according to claim 15, wherein:

the tags indicate respective addresses of allocated objects; and

the one or more marked tags indicate one or more respective addresses of migrated objects.

19. The method according to claim 4, wherein the step of producing the report includes:

processing the log file from the end backward until the beginning.

20. The method according to claim 8, wherein the step of producing the report includes:

processing the log file from the end backward until the beginning.

21. The computer-readable medium according to claim 13, wherein the step of producing the report includes:

processing the log file from the end backward until the beginning.

22. The computer-readable medium according to claim 17, wherein the step of producing the report include:

processing the log file from the end backward until the beginning.